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Submission Summary

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Title: Energy-Efficient Adaptive MIMO Decoders

Abstract: Energy efficiency is a primary design goal of modern wireless communication systems, especially those deployed in portable devices such as mobile phones. This paper presents a novel concept which allows such systems to exploit the changing nature of their environment in order to save power. This concept is employed to design an advanced MIMO decoder. The latter continuously monitors the signal-to-noise ratio (SNR) and re-configures its hardware in order to minimize its energy consumption. The design is implemented in 65nm technology in order to evaluate its performance and costs. The results show that the proposed adaptive architecture can achieve up to 50% of energy consumption compared to existing designs at the cost of increased area overheads.

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